1987

Fleet Numerical Oceanography Center

Office of Naval Research

"Fleet Numerical Oceanographic Center", Naval Research Reviews, v. 39, no.1, (1987), 1 p.
http://hdl.handle.net/10945/56671

LTJG Harry Nicholson at the console of the Control Data Corporation computer in 1960. This 1604 computer was the first commercial computer built and sold by CDC. It was also the first computer used by what is now the Fleet Numerical Oceanography Center, Monterey, California. CAPT Harry Nicholson later became Commanding Officer of FLENUMOCEANCEN in 1982.

Fleet Numerical Oceanography Center

Fleet Numerical Oceanography Center (FLENUMOCEANCEN) is the master computer center and controller for the worldwide Naval Environment Data Network (NEDN). The mission of FLENUMOCEANCEN is to provide numerical environmental products—analyses and predictions, both meteorological and oceanographic—on an operational basis, to Navy forces.

FLENUMOCEANCEN's earliest predecessor was the Project, NANWEP, a Navy Numerical Weather Problems Group established in 1958 at Fleet Weather Center, Suitland, Maryland, to conduct research in numerical weather prediction techniques. The group was transferred to Monterey, California, in 1959 to work cooperatively with meteorologists at the Naval Postgraduate School (NPS). It was designated the Fleet Numerical Weather Facility in 1961. During 1963-64 the facility established the world's first successful satellite link for intercomputer, environmental data communication.

During the 1966-1969 period, Fleet Numerical Weather Facility pioneered the prediction of ocean acoustic conditions based on synoptic analysis of oceanographic data. The facility was redesignated Fleet Numerical Weather Central in 1968. By 1970, the Four-Processor Primitive Equation forecast Model, which demonstrated atmospheric forecasting skill out to 72 hours, had been developed in conjunction with NPS faculty members. A Satellite Processing Computer was installed at FLENUMOCEANCEN in 1976 to process and merge satellite data into the environmental products developed for transmission Navywide.

In 1979, Fleet Numerical Weather Central was renamed Fleet Numerical Oceanography Center. 1981 marked the installation of the world's first operational ocean mixed layer prediction system at FLENUMOCEANCEN for fleet applications in antisubmarine warfare. The Navy Operational Global Atmospheric Prediction System (NOGAPS) was implemented in 1982 on a very large, newly installed "super" computer.

Since 1982 FLENUMOCEANCEN has brought on-line Navy Operational Regional Atmospheric Prediction System (NORAPS) which has provided high resolution forecasts in many areas of the world. An advanced spectral ocean wave model, designed to improve forecasts of wave and swell conditions on the open ocean, has been expanded into a global model.

Naval Research Reviews

Office of Naval Research
One / 1987
Vol XXXIX

NAVAL POSTGRADUATE SCHOOL ISSUE

Naval Research Reviews

Office of Naval Research
One / 1987
Vol XXXIX

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Growth and motion of vortices generated by a plate at an angle of attack of 60 degrees. The picture is taken in a recirculating water table and the vortices are visualized by means of aluminum dust. The alternate shedding of vortices takes place practically about all bluff bodies (cylinders, cables, missiles, etc.) and gives rise to large drag, oscillating lift force, and hydro- or aero-elastic oscillations. The flow field may be simulated numerically through the use of the fundamental equations of motion. The visualization of flow helps to our physical understanding of the phenomenon and provides data for comparison with those obtained in numerical experiments. (See article beginning on page 3.)

Photograph is the courtesy of Professor Turgut Sarpkaya (NPS).

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